

We claim:

1. A unitary dosing device for a liquid, comprising:
- (a) a main chamber sized to hold more than one dose of the liquid;
- 5 (b) a dosing chamber sized to hold one dose of the liquid, in fluidic communication with the main chamber; and
- (c) an unbiased shuttle adapted for movement between:
- (i) a first position in which the liquid can flow between the main chamber and the dosing chamber, but not out of the device; and
- 10 (ii) a second position in which the shuttle is depressed and seals the dosing chamber from the main chamber, and permits the liquid to exit the device.
2. A buffered dosing device for a liquid, comprising:
- (a) a main chamber sized to hold more than one dose of the liquid;
- 15 (b) a dosing chamber sized to hold one dose of the liquid, in fluidic communication with the main chamber; and
- (c) a shuttle adapted for movement between:
- (i) a first position in which the liquid can flow between the main chamber and the dosing chamber;
- 20 (ii) a second position in which the shuttle is depressed and seals the dosing chamber from the main chamber, and permits the liquid to exit the dosing chamber; and
- 25 (iii) a third position intermediate the first and second positions, in which no liquid can flow between the main chamber and the dosing chamber, and no liquid can escape from the dosing chamber.
3. A dosing device, comprising:
- (a) a main chamber sized to hold more than one dose of the liquid;
- 30 (b) a dosing chamber sized to hold one dose of the liquid, in fluidic communication with the main chamber; and
- (c) a shuttle adapted for movement between:

*in which the device is a first state*  
*said first state depending on a state of the device*

10072542 020702

- (i) a first position in which the liquid can flow between the main chamber and the dosing chamber; and
- (ii) a second position in which the shuttle is depressed and seals the dosing chamber from the main chamber, and permits the liquid to exit the dosing chamber;

wherein the activation location for the shuttle is disposed at an opposite end of the device from a dispensation location where the liquid exits the device.

4. The dosing device of one of claims 1, 2, and 3, wherein the shuttle is adapted for movement between the second position and the first position, in which the dosing chamber can be refilled with liquid from the main chamber.

5. The dosing device of one of claims 1, 2, and 3, wherein the shuttle is disposed within the main chamber and the dosing chamber.

6. The dosing device of one of claims 1, 2, and 3, wherein the device includes a volumetric spacer within the dosing chamber.

7. The dosing device of one of claims 1, 2, and 3, in combination with liquid in at least one of the main chamber and the dosing chamber.

8. The dosing device of one of claims 2 and 3, wherein the device further includes a spring for biasing the shuttle toward the first position.

9. The dosing device of one of claims 1, 2, and 3, wherein the main chamber is refillable.

10. The dosing device of claim 9, wherein the main chamber may be refilled by removing a cap that forms at least a portion of the main chamber.

11. The dosing device of one of claims 1, 2, and 3, in combination with a carrier tray.

12. The dosing device of one of claims 2 and 3, wherein the shuttle is unbiased.

5 13. The device of one of claims 1, 2, and 3, wherein when the fluid in the main chamber has been dispensed, the main chamber cannot readily be refilled.

10 14. In a dosing device having a dosing chamber, a removable volumetric spacer that, when placed in the dosing chamber, reduces the volume available for a liquid within that dosing chamber.

15 15. A method of providing a dosing device for a liquid, the dosing device comprising a main chamber sized to hold more than one dose of the liquid, a dosing chamber sized to hold one dose of the liquid, in fluidic communication with the main chamber, and an unbiased shuttle adapted for movement between a first position in which the liquid can flow between the main chamber and the dosing chamber, but not out of the device, and a second position in which the shuttle is depressed and seals the dosing chamber from the main chamber, and permits the liquid to exit the device, the method comprising the steps of:

- 20 (a) positioning at least a first portion of the shuttle within the main chamber and the dosing chamber;
- (b) filling at least the main chamber with the liquid; and
- (c) sealing the liquid within the dosing device.